

**RECEIVED  
CENTRAL FAX CENTER**

AUG 11 2006

Doc Code: AP.PRE.REQ

PTO/SB/33 (07-05)

Approved for use through xx/xx/200x. OMB 0651-00xx  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>PRE-APPEAL BRIEF REQUEST FOR REVIEW</b>		Docket Number (Optional) <b>14.0246 (WGEC.0079)</b>	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on <u>August 11, 2006</u> Signature <u>Ari Pramudji</u> Typed or printed name <u>Ari Pramudji</u>		Application Number <b>10/623,904</b>	Filed <b>July 21, 2003</b>
		First Named Inventor <b>Kenneth E. Walker</b>	
		Art Unit <b>3663</b>	Examiner <b>S. Hughes</b>
Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.  This request is being filed with a notice of appeal.  The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.			
I am the <input type="checkbox"/> applicant/inventor. <input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96) <input type="checkbox"/> attorney or agent of record. Registration number _____ <input checked="" type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 <u>45,022</u>		<u>Ari Pramudji</u> Signature <u>Ari Pramudji</u> Typed or printed name <u>703 468 4600</u> Telephone number <u>August 11, 2006</u> Date	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.			
<input type="checkbox"/> *Total of _____ forms are submitted.			

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

### REMARKS

For reasons stated below, Applicants respectfully submit that the Examiner fails to establish a prima facie case of obviousness. Review of the final rejection in the above referenced application is respectfully requested.

Claims 1-4, 7-17, 19-24, 26-29, 31-34 and 36 stand rejected under 35 USC 103(a) as being obvious over US Patent Application Publication 2003/0117893 ("Bary") in view of US Patent No. 6,430,105 ("Stephen"). Applicants respectfully traverse this rejection.

Bary generally describes the use of seismic data acquisition units in seismic surveying, each acquisition unit having an inclinometer for measuring its orientation. The acquisition units are configured to be thrown overboard and freely fall to the bottom of the ocean. See abstract, paragraph [0009], [0029] and [0206]. However, Bary does not teach or disclose determining at least one initial inclination of at least one orientation sensor coupled to at least one ocean bottom cable and determining at least one current inclination of the at least one orientation sensor, let alone determining whether the at least one ocean bottom cable has moved using the at least one initial inclination and the at least one current inclination, as recited in claims 1, 16, 28 and 33.

Stephen generally describes the use of ocean bottom cables in seismic surveying. Each ocean bottom cable has sensor units, each sensor unit having three orthogonally disposed accelerometers for measuring acceleration due to gravity and seismic vibration. See column 4, lines 15-21. Like Bary, Stephen does not teach or disclose determining whether the at least one ocean bottom cable has moved using the at least one initial inclination and the at least one current inclination, as recited in claims 1, 16, 28 and 33.

Neither Bary nor Stephen, alone or in combination, teaches or discloses determining whether the at least one ocean bottom cable has moved using the at least one initial inclination and the at least one current inclination, as recited in claims 1, 16, 28 and 33. Furthermore, there is no suggestion discerned in Bary or Stephen of modifying the devices or methods disclosed therein in the direction of claims 1, 16, 28 and 33, nor is there any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997).

Not only is there no suggestion discerned in Bary or Stephen of modifying the devices or methods disclosed therein in the direction of claims 1, 16, 28 and 33, Bary teaches away from using ocean bottom cables in seismic surveying. Bary observes that seismic data acquired using ocean bottom cables are of less quality, as compared to those acquired using acquisition units that

are thrown overboard and freely descend to the bottom of the ocean. *See* paragraphs [0004]-[0006]. This reduction in quality is caused by the fact that the ocean cables are typically not buried in the bottom of the ocean, which leads to a less than optimal coupling of seismic pickups with the bottom of the ocean. *See* paragraph [0004]. For that reason, Bary's invention is directed to improving seismic surveying using the free falling acquisition units, as opposed to the ocean bottom cables. *See* paragraph [0008]. In this manner, Bary teaches away from using ocean bottom cables in seismic surveying, as disclosed in Stephen.

Further, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP 2143.01; *In re Ratti*, 270 F.2d 810 (CCPA 1959). Here, the Examiner's proposed modification of placing the acquisition units disclosed in Bary inside the ocean bottom cables disclosed in Stephen would significantly change the seismic surveying operation disclosed in Bary. As mentioned above, Bary proposes a seismic surveying method using acquisition units that are launched from a vessel and freely descend to the bottom of the ocean. On the other hand, Stephen proposes a seismic surveying method using ocean bottom cables having sensor units coupled thereto. The Examiner's proposal of placing the acquisition units taught in Bary into ocean bottom cables taught in Stephen would significantly change the principle of operation of the acquisition units taught in Bary, since the ocean bottom cables would inhibit the acquisition units from freely descending to the bottom of the ocean. Furthermore, the Examiner's suggestion of placing the acquisition units taught in Bary into ocean bottom cables would merely place the acquisition units on the bottom of the ocean, as opposed to installing or sticking the acquisition units to the bottom of the ocean, as required in Bary to ensure optimal coupling of seismic pickups with the ocean bottom. Thus, placing the acquisition units inside the ocean bottom cables would preclude the acquisition units from sticking to the bottom of the ocean and would result in a less than optimal coupling of seismic pickups with the bottom of the ocean. As such, the Examiner's suggested combination of Bary and Stephen would require a substantial reconstruction and redesign of the elements shown in Bary as well as a change in the basis principle under which the Bary construction was designed to operate.

In the Final Office Action, the Examiner asserts that Bary discloses checking the coupling state of the geophones with the ocean bottom using an inclinometer and a compass and beginning acquisition after the acquisition units are settled and coupled to the ocean bottom. The Examiner then concludes that it would have been obvious to use the inclinometer and the compass to

determine the orientations of the acquisition units as they are settling into the ocean bottom and to determine whether the acquisition units have moved based on the inclination measurements. The Examiner relies on paragraphs [0008]-[0009], [0028]-[0032], [0083]-[0089] and [0207] of Bary to support the Examiner's assertions. *See* Final Office Action, page 4, line 24 - page 5, line 7.

However, contrary to the Examiner's assertions, paragraphs [0008]-[0009], [0028]-[0032], [0083]-[0089] and [0207] of Bary mention nothing about checking the coupling state of the geophones using an inclinometer and a compass. In paragraphs [0085]-[0089], Bary merely proposes a data acquisition module (DAM) in charge of digitizing the analog signals of the seismic pickups, acquisition and control of the non seismic detectors, a coupling tester for checking the coupling state of the geophones and a testing generator for testing the quality of the seismic channels. Bary does not mention that the coupling state of the geophones is checked using inclinometers. This is merely an assumption made by the Examiner without any support in Bary.

In paragraph [0207], Bary merely proposes that once the acquisition units are set at the bottom of the ocean, acquisition of the seismic data can start. Nothing in paragraphs [0008]-[0009], [0028]-[0032], [0083]-[0089] and [0207] is directed to the acquisition units having to settle before acquisition, let alone about measuring the inclinations of the acquisition units during the settling period of the acquisition units and determining whether the acquisition units have moved based on the inclination measurements. This conclusion is pure conjecture and is based on impermissible hindsight afforded by the claimed invention. *See* MPEP 2141.

The Examiner concedes that Bary does not disclose sensors as part of an ocean bottom cable and asserts that Stephen discloses that the ocean bottom cable needs to settle before measurements can be made. The Examiner then concludes that since both Stephen and Bary involve the same idea of settling the devices before the start of acquisition, it would have been obvious to place the acquisition units taught in Bary inside the ocean bottom cables taught in Stephen. *See* Final Office Action, page 5, lines 7-20.

As mentioned above, Bary makes no statements about the acquisition units having to settle before acquisition, let alone about measuring the inclinations of the acquisition units during the settling period of the acquisition units and determining whether the acquisition units have moved based on the inclination measurements. This notion is pure conjecture and is based on impermissible hindsight afforded by the claimed invention. In Bary, once the acquisition units are thrown overboard, they freely descend until they stick to the bottom of the ocean. Bary has no need of measuring the inclinations of the acquisition units while they are settling into the bottom and using the inclination measurements to determine whether the acquisition units have moved or

not. Contrary to the Examiner's assertions, Bary and Stephen do not involve the same idea of settling the devices before the start of acquisition.

In the Advisory Action, the Examiner further asserts that "Stephen shows how geophones and other equipment used by Bary can be placed into the cable instead of in the individual sensor nodes." However, contrary to the Examiner's assertion, Stephen makes no mention regarding placing geophones and other equipment used by Bary into ocean bottom cables. It appears that the Examiner has mischaracterized Stephen.

As to claim 2, the Examiner asserts that "Bary discloses re-positioning the sensors until the sensors [are] settled and perfectly coupled to the bottom ([0009]; [0105])." However, contrary to the Examiner's assertion, neither paragraph teaches re-positioning the sensors until the sensors are settled, let alone re-positioning the ocean bottom cable in response to determining that the at least one ocean bottom cable has moved, as recited in claim 2. It appears that the Examiner has mischaracterized Bary and that the Examiner's assertion is based on impermissible hindsight afforded by the claimed invention.

As to claim 4, the Examiner asserts that paragraph [0009] of Bary discloses re-positioning by physically moving the ocean bottom cable. However, contrary to the Examiner's assertion, Bary mentions nothing about re-positioning the ocean bottom cable in response to determining that the at least one ocean bottom cable has moved, let alone re-positioning by physically moving the ocean bottom cable, as recited in claim 4. Again, it appears that the Examiner has mischaracterized Bary and that the Examiner's assertion is based on impermissible hindsight afforded by the claimed invention.

As to claim 8, the Examiner asserts that paragraphs [0083]-[0089] of Bary disclose recalibrating a seismic coupling of the at least one seismic sensor to a floor of a body of water. However, contrary to the Examiner's assertion, nothing in paragraphs [0083]-[0089] disclose such limitations. Again, it appears that the Examiner has mischaracterized Bary and that the Examiner's assertion is merely based on impermissible hindsight afforded by the claimed invention.

As to claim 9, the Examiner asserts that paragraph [0084] of Bary discloses at least one seismic sensor coupled to the ocean bottom cable. However, contrary to the Examiner's assertion, paragraph [0084] discloses no such limitation. Again, it appears that the Examiner has mischaracterized Bary.

As to claims 12-14, the Examiner asserts that paragraphs [0009] and [0105] of Bary disclose determining the orientation after a survey is complete and at selected times during the

survey. Contrary to the Examiner's assertion, neither paragraph [0009] nor paragraph [0105] discloses determining an orientation of an acquisition unit after a survey or during the survey. Regarding inclinations, paragraph [0009] merely discloses acquisition units having inclinometers for measuring their orientation. Paragraph [0105] merely describes monitoring the position of the acquisition units as they descend to the bottom of the ocean. Again, it appears that the Examiner has mischaracterized Bary and that the Examiner's assertion is merely based on impermissible hindsight afforded by the claimed invention.

As to claims 17, 29 and 34, based on paragraphs [0083]-[0089] in Bary, the Examiner asserts that the DAM processor in Bary would be capable of determining whether the sensors have moved and that it would have been obvious to include the processor inside an ocean bottom cable taught in Stephen to make sure that the sensors are settled before the start of the survey. Contrary to the Examiner's assertions, Bary mentions nothing about the acquisition units having to settle before beginning acquisition, let alone about determining whether the ocean bottom cable has moved by comparing the at least one initial inclination and the at least one current inclination, as recited in claims 17, 29 and 34. Once the acquisition units are thrown overboard, they freely descend until they stick to the bottom of the ocean. Bary has no need of measuring the inclinations of the acquisition units while they are settling into the bottom and using the inclination measurements to determine whether the acquisition units have moved or not. The notion that the acquisition units in Bary have to settle before acquisition is merely based on impermissible hindsight afforded by the claimed invention.

As to claims 19, 31 and 36, the Examiner based his rejection on paragraph [0009] of Bary. However, paragraph [0009] mentions nothing about the limitations recited in the claims.

For the above reasons, the teachings of Bary and Stephen are not sufficient to render claims 1-4, 7-17, 19-24, 26-29, 31-34 and 36 prima facie obvious. Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



Ari Pramudji  
Registration No. 45,022  
ATTORNEY AT LAW  
14027 Memorial Drive, Suite 185  
Houston, Texas 77079-6895  
Telephone: (713) 468-4600  
Facsimile: (713) 468-1674  
Attorney for Assignee